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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 26 OCT 2004

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Applicant's or agent's file reference OPP030743KR	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/001211	International filing date (day/month/year) 19 JUNE 2003 (19.06.2003)	Priority date (day/month/year) 20 JUNE 2002 (20.06.2002)
International Patent Classification (IPC) or national classification and IPC IPC7 C08G 64/20, C08G 64/02, C08G 64/34, B01J 31/04		
Applicant POSCO et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 20 JANUARY 2004 (20.01.2004)	Date of completion of this report 11 OCTOBER 2004 (11.10.2004)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer LEE, Suk Ju Telephone No. 82-42-481-8149 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/001211

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001211

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-11	YES
	Claims	None	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-11	NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 4,943,677 A

D2: LI-CHEN, HAI-SHENG CHEN, and JIAN LIN ' Copolymerization of carbon dioxide and propylene oxide with zinc catalysts supported on carboxyl containing-polymers', Guangzhou Institute of Chemistry Academia Sinica Guangzhou, China, J, MACROMOL.SCI-CHEM., A24(3&4), pp. 253-260(1987)

I. Novelty and Inventive step

The present invention relates to a method of preparing a catalyst for polymerization of aliphatic polycarbonate by reacting a zinc precursor and organic dicarboxylic acid in a solution including a templating agent. D1 relates to a method of manufacturing polycarbonate by using a catalyst prepared in a reaction of a zinc precursor and organic dicarboxylic acid. D2 relates to a method of manufacturing polycarbonate by using a catalyst prepared in a reaction of zinc precursor in a copolymer solution of styrene and acrylic acid.

Claim 1 of the present invention directed to a method of manufacturing a catalyst for polymerization of polycarbonate is similar to the disclosure of D1 in the method of manufacturing a catalyst by reacting a zinc precursor and dicarboxylic acid. Though claim 1 is different from the disclosure of D1 in using a templating agent which is non-ionic surfactant and an amphiphilic block copolymer in order to exhibit high catalyst activity, to use a templating agent as a supported polymer catalyst for high activity has already been disclosed in D2. Accordingly, the present invention can be readily invented by a person skilled in the art with a normal combination of the teachings of D1 and D2, and the effect thereof is not considered to be remarkable compared with that of the prior art.

Therefore, claim 1 of the present application cannot be considered as involving an inventive step under PCT Article 33(3).

As dependent claims of claim 1, the subject matter of claims 2-8 is a templating agent of claim 1 as non-ionic surfactant which is an amphiphilic block copolymer or a kind of the same; and the subject matter of claims 9-10 is organic dicarboxylic acid as aliphatic or aromatic dicarboxylic acid, and presents a kind of zinc precursor concretely. (Continued on Supplemental BOX)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/001211

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

BOX V

However, D2 also discloses that a templating agent is non-ionic surfactant which is amphiphilic block copolymer as copolymers of styrene and acrylic acid and the other amphiphilic block copolymers are included in the same copolymers as copolymers of polystyrene and acrylic acid; D1 discloses that organic dicarboxylic acid is aliphatic or aromatic dicarboxylic acid and a zinc precursor is zinc acetate or zinc oxide, and other zinc precursors are included in the same compounds as zinc acetate and zinc oxide.

Accordingly, claims 2-10 can be easily invented by a person skilled in the art with a combination of the teachings of D1 and D2 and the effect thereof is not considered to be remarkable compared with that of the prior art.

Therefore, claims 2-10 of the present application cannot be considered as involving an inventive step under PCT Article 33(3).

Claim 11 relates to a method of manufacturing polycarbonate by copolymerization of alkylene oxide and carbon dioxide by using a catalyst for polymerization of polycarbonate. However the method of copolymerization of alkylene oxide and carbon dioxide is disclosed in D1 and the manufacture of the catalyst for polymerization of claims 1-10 is disclosed in D1 and D2.

Therefore, claim 11 of the present application cannot be considered as involving an inventive step under PCT Article 33(3).

II. Industrial Applicability

The subject matter of claims 1-11 is considered to be industrially applicable under PCT Article 33(4).